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approach

The Tail is Wagging the Dog with Personal Flight Gear

There's been another brouhaha lately about so-called unauthorized flight gear. This is a subject that gets ignored for months at a time and then, for no apparent reason, we have a "special" on it. We start conducting witch hunts, looking for portable butt kits, lip mikes and boot zippers. This is only a small problem for the savvy PR branch officer, however. When the surprise inspection is announced, usually at least one week in advance, he sees to it that all the "bad gear" is farmed out to staterooms, ready room chairs and desk drawers.

Why do aviators persist in beating the system with their flight gear? Because the system ignores a basic fact of human nature. As marketing experts have long known, people are very particular, parochial and individualistic about items they wear or use close to their bodies. This phenomenon is so pronounced that people will often ignore laws, economics and common sense before they change their usage of personal products. This is why many people still don't wear seat belts when they drive, despite the overwhelming reasons to do so. This is why so many are still smoking cigarettes, regardless of the warnings.

It stands to reason that this effect is even stronger with flight gear, because its function is to help the owner survive catastrophe, instead of just indulging some bad habit. The typical aviator's reaction to flight gear regulations is, "No bureaucrat is gonna' tell me what I can have in my pockets when I punch out — it's my tail on the line." The trouble is that the current regulatory system treats flight gear like aircraft parts. It is too impersonal and ignores the fact that every aviator has individual needs for survival gear, depending on his own assesment of the threats he will face and how he intends to deal with them.

"No bureaucrat is gonna' tell me what I can have in my pockets when I punch out — it's my tail on the line."

All the rules, regulations and inspections the system could generate would not change this. Nor can we try to convince the fleet aviator that the standard issue flight gear is the best on the market or the exact right design for his next mission. It is just an unavoidable fact that the best is too expensive and the highly specialized is too difficult. The users know that, accept it like good soldiers and improvise. We should not blame them for that.

The system needs to accept the fact that aviators are going to fly with gear of their own design whether or not the chain-of-command knows about it, agrees with it or tries to stop it. Then we can begin to educate the fleet aviator in making intelligent and safe choices if he deviates from the standard issue.

John Flynn, Editor

From the Commander: Because of this very real (and acknowledged) issue, a flag level steering committee (Aircrew Survival Safety Board) has been established to solve this longstanding problem.

In the meantime there has to be checks and balances — if nonstandard equipment is "desired" and felt to be "required" by individual crewmen — a recommendation for Navy-wide acceptance should be initiated. If it's a good idea, let's share it; if it's a dangerous practice, let's find another way. — Henri B. Chase

inside approach

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A-7E Corsair of VA-174 traps aboard USS *LEXINGTON* (CVT-16). Photo by Peter Mersky

FEATURES

DEPARTMENTS

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To Eject or Not to Eject! There Should Be No Question

By Capt. M.P. Holland, USMC

You're sitting in the hold short at MCAS WestPac in your F-4S Phantom II.

Pilot: "Runups check good, controls are free, wings are down and locked, trim is 3-0-0, slats/flaps are out one-half, hook is up, harness is locked, boost pumps check good, lower ejection handle guard is down, face curtain pin is out, I'm ready to go."

Rio: "Beer cans are down, slats are out, ramps check good, circuit breakers are all in, lower ejection handle guard is down, dual eject is selected, TACAN antenna-upper, face curtain pin-pulled, TACAN T/R, all set to go."

Tower: Devil 21, wind is 060 at 8, cleared for takeoff runway 4."

You position your Phantom on the runway just as you've done hundreds of times before. This is just another routine all-weather intercept hop and you've been cleared for takeoff... So you're going to go fly, right?

THE planning actually started the evening prior when you looked at the flight schedule and saw that you were flying with one of the new aircrew in the squadron. You checked the syllabus manual and noted that the "X" called for low-altitude look-downs. This morning you talked with your RIO and wingman to determine any weaknesses that would require a little extra work.

An hour before brief time you began preparing the formal brief by calling the GCI controller and weather forecaster, figuring out the takeoff performance parameters in the NATOPS manual and brushing up on a few numbers in the TAC manual. The brief was scheduled for two hours prior to takeoff time. This allowed about one hour and 15 minutes to cover the admin and tactics, plenty of time.

The admin portion of the brief took 15 minutes and covered crew assignments, operating area, navigation and flight planning, home base and divert field facilities, bingo and emergencies to include: systems failures, ejection and SAR facilities. The remainder covered tactics, including missile envelopes, tac-manual intercept parameters, radar scope interpretation, degraded systems operation, pilot technique and RIO technique. All in all, very thorough.

No discrepancies were found during preflight and you note that you have a new right main tire. Start sequence was uneventful like hundreds of times before. Why shouldn't everything go smoothly?

It takes a little more power than usual taxiing out of the chocks, but since this aircraft hasn't moved over the past weekend, there are probably flat spots on the tires. Taxiing to the hold short, the nose wheel steering requires a bit of left rudder to track straight, a debrief item for maintenance. You center your aircraft in the middle of the right side of the runway to allow your wingman to have the upwind side, and hold while he positions himself.

After receiving a thumbs up, you kiss him off and select military power. "Two good engines" you report to your RIO. After rolling about 500 feet you stroke the burners and the RIO reports "80 knots."

At 110 knots you feel an explosion and the aircraft swerves violently to the right. (A dragging brake has overheated and caused the right main tire to blow.) You attempt to abort by pulling the throttles to idle, lowering the arresting hook, deploying the drag chute, selecting nose wheel steering and disengaging the anti-skid, but now you are heading 45 degrees right of runway heading and looking at a lot of grass. Nose wheel steering and light differential braking is bringing the aircraft back to the left, but you're still above 80 knots and it's obvious that you are going to depart the runway surface.


05

You face the most important decision of your life, a decision which you don't have time to make! At 80 knots you are traveling over 135 feet per second. The average runway is 150 feet wide and you begin your takeoff roll with 112 feet of asphalt left of your nose and 38 feet right of your nose. If you depart the runway at a 45-degree angle from this point, you will have traveled 54 feet. At a 30-degree angle, you will have traveled 76 feet and at 10 degrees, have traveled 218 feet. These distances equate to .4 seconds, .56 seconds and 1.6 seconds, respectively. It takes 1.4 seconds from initiation of the ejection sequence to the front seat ejection seat gun firing (not including reaction time).

The F-4 Phantom, unlike the training command TA-4, has a wide wheel base (17 feet 10 inches) and is not prone to flipping over. The F-4 however, has a documented history of nose strut collapse and subsequent damage to the ejection seats. (Two separate instances were noted, one in 1982 and one in 1983.) In both cases the seat was rendered inoperable. Additional factors that should be considered when making your decision are the obstructions which may be encountered before the aircraft would come to rest. It is imperative that all aircrew be familiar with the facility that they are operating from. (MCAS Midwest and MCAS South Pacific Island present two entirely different problems.)

In this scenario, when the RIO looked out the left side of his canopy and saw the centerline of the runway at a 45-degree angle, he reached between his legs and ejected both aircrew. The rear seat left the aircraft as it departed the runway surface. The front seat left as the aircraft was slowing through 50 knots. The aircraft came to rest 75 feet right of the runway surface and 1,500 feet down range from where the tire blew. With the exception of a blown tire and two missing seats, the aircraft sustained no damage. The ejection sequence went "as advertised" and both aircrew landed safely after one swing in the chute.

In this instance we have two very embarrassed aircrew standing in the grass with their chutes under their arms staring at an empty airplane sitting in the grass, both engines at idle. Had the nose gear or a main strut collapsed, we could have just as easily had one or more fatalities for ejecting outside the safe envelope. The aircraft mishap board later determined that the cause of the incident was an improperly installed right main tire.

While there are too many variables to establish a standard criterion whether to eject or stay with the aircraft, each aircrew should formulate his own parameters and tailor them to the airfield from which he is operating. This is not a decision which can wait until the need arises. It is one which should be made well in advance of strapping on your aircraft, briefed as a matter of aircrew coordination and continuously reviewed. If the situation ever arises — there should be no question. ◄

Capt. Holland flies the F-4S Phantom II and is aviation safety officer for VMFA-232, MAG 15, of the 1st Marine Aircraft Wing, Fleet Marine Pacific.

Let's Play Jeopardy

By Lcdr. C.S. Sayers

As a new safety officer, I found myself with a NATOPS training program that was somewhat routine and suffering from the blahs. Here is a *re-invented* idea that helped me generate interest and a bit of entertainment, while reviewing aircraft and weapon systems.

A previous command introduced me to the game of NATOPS Jeopardy, fashioned after the long running television show, as a means of dealing with the training routine. On our squadron's first attempt at the game we divided the ready room into two groups. This worked fine until more than one person knew the answer, and I was unable to determine who raised their hand first. Long after the verbal abuse and paper wads ceased, I decided the potential for training in this format was outstanding, but it had to be mechanized better. So, with the help of a talented aviation electrician, a trip to a radio equipment store and a few hours of home wood working, a game center piece was created. Although, the idea of a "game box" is not entirely new among fighter squadrons, it did not previously exist in this command, and provided the necessary gimmick to generate interest in systems training.

The game box has four, hand-held push buttons, each connected to one of four lights. By activating the push button each player has the opportunity to answer the question posed by the master of ceremonies. Each light is mutually exclusive, and the first depressed is the only one illuminated. The mechanization of the selection portion of the game allowed development of some unique interest generating categories. By introducing such categories as: "Fast Cars and Fast Women," "Trivia," "Famous Aces," etc., the game is never dull! Frequently, categories are solicited from members of the squadron, who in turn, keep the game evolving.

The system categories are posted several days ahead of time to allow folks an opportunity to review the subject that will be involved. The "Fun" categories can make up a full column or can be mixed in with the meaningful system columns. In any case, NATOPS Jeopardy easily compliments a sound training program and provides a unique break to the training routine.

Game Rules and Specifics:

- The safety officer and NATOPS officer usually function as the "Judge" and the "Master of Ceremonies." The "Judge" is responsible for score keeping, ruling on answer validity and stopping the question when a light is illuminated. The "Master of Ceremonies" is responsible for reading the questions and the pre-game setup.
- There are three phases of the game: initial, double and final jeopardy. The first two phases involve four to five categories each made up of five question cards. The point value of each card is based on degree of difficulty and graduated from 10 to 50 points. Double Jeopardy is essentially the same as Initial Jeopardy except the point value is doubled. Final Jeopardy provides each team the opportunity to bet all or a portion of their points on a single question to win the game. The bet must be turned into the "Judge" before the question is read and answered.
- During the first two phases of Jeopardy the team that depresses their button first, stops the question and has the opportunity to answer. If correct, they receive the point value of the question. If incorrect, they lose the point value and the second team receives the opportunity to hear the entire question and respond. If the second team's answer is correct, they receive full point value, but if incorrect, no points are deducted. In any case, the question and answer are read aloud for the benefit of the entire ready room.
- Initial question selection of the game begins with the junior player and subsequently falls to the person with the last correct answer.
- If you want to get fancy, a "Daily Double" can be placed under a card doubling the point value to be gained if the question is answered correctly. As previously mentioned, non-system, "fun" questions can be introduced randomly or as one of five categories.

GOOD LUCK ON CREATING YOUR OWN "GAME BOX" AND STIMULATING INTEREST IN SYSTEMS TRAINING. ◄

Lcdr. Sayers is an F-14 RIO with VF-102.

F-14 Single Engine at Night. The F-14 was approximately 100 miles from the CV on a night CAP hop during an ORE. Following a hard turn outbound for an E-2 Hawkeye vector, the pilot noticed RPM on the starboard engine had decreased to approximately 60 percent while TIT (Turbine Inlet Temperature) was gradually increasing past 800 degrees. At this time there were no associated caution lights. Boldface procedures for a compressor stall were executed by unloading the aircraft and retarding both throttles to idle. The stall appeared to clear itself with RPM increasing to a normal 75 percent and TIT decreasing to 600 degrees. Both throttles were advanced with normal response on both engines. About 15 seconds later RPM on the starboard engine began decreasing again with TIT slowly increasing and no associated caution lights. Boldface procedures were again initiated with RPM continuing to deteriorate, TIT rising past 850 degrees, and no engine response to throttle movement. At this time the starboard engine was secured with associated illumination of R FUEL PRESS, OIL PRESS, R GEN AND HYD PRESS caution lights. The bidirectional hydraulic transfer pump worked as advertised, picking up the flight side hydraulic system at 2,400 psi. Shortly thereafter the R INLET and R RAMP caution lights illuminated, after which the right ramp was stowed. The R Ramp light went out indicating the right ramp was, in fact, in the stow position. After turning toward CV and notifying a squadron rep of the problem, airstart procedures were initiated for the starboard engine. Engine instruments were indicating a normal lightoff when the cockpit was flooded with a dense, oily smoke. The ECS was secured, cabin pressure dumped and ram air selected. Gradually the smoke cleared and with two good engines now on the line an uneventful recovery aboard CV was affected. In the final analysis, the right ramps (Air Inlet Control System) programmer had failed and mispositioned the ramp causing the starboard engine compressor stall. With the ramp stowed the engine operated normally. The dense smoke on the airstart was determined to be the result of a defective oil seal and unrelated to the ramp/starboard engine difficulties. So you say; "No big deal." Well, you're right, it wasn't, in retrospect. The moral of the story is that when you're single-engine at night and the cockpit just went IFR with smoke it's most important to: 1. Aviate, i.e., keep flying the airplane. 2. Try to remain calm while sorting out just what your problems are. 3. Act on them in the appropriate fashion according to NATOPS. The end result in this case was no big deal and just one more "routine" night trap aboard USS CV.

P.S. With the ECS secured did you remember to defog your windshield prior to recovery?

Submitted by Lt. Michael Jones, VF-31

AIR BREAKS

Marines Help Civilian Airliner. The civilian commuter airliner captain began preparation for landing at a southeastern airfield when he found he had an unsafe right main landing gear. Already in contact with the Marine Corps Air Station controlling facility which also serviced the civilian airfield, the pilot indicated his desire to make a wheels-up landing at the MCAS. The MCAS crash crew went into action, removing the arresting gear on the southwest runway and foaming the strip as well. In addition, water tankers and fire trucks moved into position waiting for the civilian aircraft. The Naval Hospital was also notified and prepared for a mass casualty procedure.

The airliner captain secured his engines just prior to touchdown and slid along the runway centerline to a safe landing. Relatively minor damage had been done to the aircraft — curled props, scraped paint and lost antennas. But the people inside the airliner were safe and unharmed. They quickly exited the airliner through emergency routes.

The air controllers, firemen, crash crew and medical personnel had been able to put the practice drills they had conducted to good use this time, although, fortunately, they were not all needed. ◄

Reflections of an Ex-Safety Officer

By Lcdr. Joe Littleton

MY first patrol aviation tour was probably much like what others have experienced. I worked hard, played hard and, most importantly, I flew hard. Throughout my training syllabus and especially as a plane commander, I spent untold hours planning flights, reviewing decisions and honing my aviation skills in hopes that I could become the best pilot in my squadron.

Safety was important to me back in those days, but I just plain didn't want some crusty, old, doddering *Lcdr. Safety Officer* second-guessing my actions in the aircraft. On occasion, I could be seen clearing the passageways in the hangar before stepping out into full view. No need to expose yourself unnecessarily to that old boy's rantings about cold weather procedures, survival equipment or aircraft systems.

I knew everything I needed to know about safety. Tactics, low-altitude maneuvering techniques and weapon parameters were my forte. Besides, the safety officer rarely smiled and he never told any good jokes, so why bother to seek him out?

Imagine my shock when I returned to the P-3 community six years later and the skipper said, "Welcome aboard. We are going to assign you as the NATOPS safety officer."

I smiled politely and said, "Gee, thanks skipper," and as I

closed the door on the way out, all I could think of was that crusty, doddering, old *Lcdr. Safety Officer* who haunted me during my first tour.

My new squadron had already amassed an impressive safety record. Without a second thought, I was committed to keeping it that way. I also knew that for the first time in my career, I would have to consider what "safety" was and how it related to me as an individual, an operator and an aviator. This was not an easy task. For some time it seemed to boil down to compromises, a multitude of competing objectives and command goals.

After several days of reflection, things started to fall together. Initially, I had trouble accepting **safety** as a stand-alone objective. It wasn't until I tried to incorporate **safety** as a *combat readiness factor* that the muddied waters started to clear. Being short of memory as a new crusty, doddering, old *Lcdr. Safety Officer*, I quickly jotted down some notes and pulled together my thought patterns. They became the basis of my approach to my new duties and, in all modesty, I must admit that I did a pretty good job.

It's now over a year later, and I have recently been reassigned as the maintenance officer. While sifting through some old material the other day, I came across my "safety identity" notes. I have long since committed the concepts to memory, but I would like to offer them to you. You never know, someday you might be a crusty, doddering, old *Lcdr. Safety Officer*.

What I learned was how does safety, specifically the safety/NATOPS department, contribute to the naval aviation mission? In wartime, our job is fused ordnance on target. This goal is first and foremost. It eclipses all other considerations. Our objective in wartime is to inflict unacceptable losses on the enemy while conserving and maintaining our assets so they may be used in later engagements. However, every combat engagement involves the risk of losing our warfighting capability (aircraft/aircrews) as we attempt to neutralize the enemy. Understandably then, policies, procedures and normal peacetime safety practices should be geared to training and indoctrination to minimize these losses.

In peacetime, our primary goal is READINESS to conduct sustained and successful wartime operations — again, fused ordnance on target. Vince Lombardi is credited with having said, "You play like you practice." In football, as in most other professions, this is an accurate, profound observation. In our business it is a conditionally correct statement. We must hone our skills and constantly expand them to keep pace with the capabilities of our potential enemies.

Our pilots must know the aircraft thoroughly. They must understand its operating envelope and their own personal limitations. Our TACCOs must operate their equipment as if it were an extension of their bodies, instinctively pursuing every possible avenue of target detection, localization and attack. Similar statements can be made about every flight crew member. Our maintenance personnel must be able to test, diagnose and repair a truly endless list of aircraft malfunctions.

Every man and each piece of equipment are critical links to attain readiness for combat. To the extent that our peacetime policy and procedures result in damaged or destroyed equipment, wasted flight hours or the loss of airframes and aircrew, we adversely impact the squadron's capability to attain, maintain and execute our best readiness posture for combat. In a squadron with nine aircraft assigned, damage or destruction of just one airframe during peacetime operations immediately reduces our absolute readiness for combat by at least 11 percent. The injury or death of even one of our shipmates, due perhaps to a motorcycle or automobile accident, can be equally or even more damaging to combat readiness if he represents a critical technical skill that cannot be immediately replaced within limited squadron manning. Every resource is valuable — we must *exercise* each of them to increase our combat readiness but at the same time *conserve* them so that they are available to answer the bell should we be called into combat.

The result of these two factors, *exercise* and *conserve*, may be viewed as continuous dichotomy in squadron operating policies. At one end of the spectrum, conservation (safety) would require that we not fly at all before combat, thereby ensuring that the maximum amount of resources are available for combat. The other end of the spectrum requires that we operate in peacetime with a combat mentality and constantly stress the airframes, aircrews and maintenance personnel to the "edge of the envelope" as a part of normal daily routine. Between these extremes exists a continuum of combinations of *exercise* and *conserve*. The commanding officer establishes policy and procedures that represent the proper blend of these factors to attain maximum combat readiness.

The squadron safety/NATOPS department is but one ingredient in the formulation and execution of command operations policy. In some squadrons, the safety/NATOPS department tends to assume more of a **conserve** vice **exercise** posture and hence an adversary relationship is created between operations and safety/NATOPS. A certain dose of "check and balance" type relations between these two departments is valuable; however, the best results are obtained when the two departments **cooperate**, **coordinate**, **communicate** and **acknowledge** common goals and objectives at a squadron level. Let's maximize combat readiness by working together! ◄

Lcdr. Littleton, a P-3 pilot, is maintenance officer for VP-45 NAS Jacksonville, Fla. He recently completed a six-month deployment to the Mediterranean as a P-3 plane commander, engaging in antisubmarine warfare operations out of Rota, Spain. He has served as squadron safety officer. Littleton has an aerospace engineering degree from the University of Virginia and a masters in finance from the Naval Postgraduate School, Monterey, Calif.

Rook Ramblings

The lifeblood of Approach is the constant stream of submissions from the fleet. Without those "cards and letters" we could not sustain the level of information and interest needed to sustain the magazine itself. Normally individuals send us single articles. Some squadrons send pieces on a regular basis. The subjects covered are many. That's fine. Just what we like to see. We seldom get a group of stories that we can bind together from one squadron, but what follows is such a grouping, a selection of four articles from four J.O.s from VAQ-137. It's a good opportunity to see how this level of aviator and naval officer sees certain aspects of himself and his community.

The Big Scramble

By Lt. K.M. Trombley

DID you ever wonder why every year your training officer schedules you for an ejection seat refresher? And how about that emergency egress scenario; did you feel the heat rise, your pulse quicken? If your last opportunity to excel in this classroom mock-up was overshadowed by an uncomfortable feeling that you had a need to perform, you could be in trouble. Remember a successful ejection has a lot of things working for you; a successful emergency ground egress has only you, working alone.

As new systems are approved and incorporated into your aircraft take a look at how it affects the snugness of the cockpit, and your ability to enter and exit the aircraft comfortably without compromising contortions on your part. Your ability to negotiate the space available in attempts to release leg restraints, lap koch fittings, etc., is your ticket to survival. Do not let a radar, weapon system pedestal, etc., be the factor that changes a quick orderly egress into a scramble of desperate moves to save your life.

The annual training provided is an excellent step in preparing and enforcing your emergency egress techniques. But a seat out of the environment of the aircraft can hardly provide the setting that, more than anything else, will decide the amount of complicating factors facing your egress. Take that extra 30 seconds every now and then to perfect your procedures. Face it, if your actions are not second nature in an emergency situation, you are too far behind the power curve to adequately negotiate an emergency egress from a dark cockpit, let alone a flight deck at night with turning engines.

Know the conditions under which egress is pending and those where it is immediate; the difference is a dynamic one. If you are caught in a moment of hesitation, you are losing precious seconds. Emergency situations leave little time to keep abreast of the events that surround you. If you are so totally involved in trying to free yourself from your aircraft, you have become more of a liability than an asset.

Familiarize yourself with egress procedures and build your competency in their execution. If you are professional enough to get in, be professional getting out, in any situation.

Lt. Trombley is an electronic countermeasures officer (ECMO) with VAQ-137 and is also the squadron legal officer.

A Cross-Country (Nearly) Gone Awry

By Lt. Randall J. Lovdahl

FEW evolutions ashore can attract greater visibility than the J.O. crew embarked on a cross-country. Fewer still demand greater commitment to safety, stricter adherence to established procedures and meticulous attention to preflight planning. The rewards of a successful cross-country are many, even if only to build confidence when operating away from home base. But significant potential exists for the J.O. to hang himself with the rope his command has dealt out for the weekend. Fortunately, much of the danger can be avoided altogether through concerted professional effort.

Perhaps the greatest threat confronting the J.O. crew is breaks in established habit patterns, posed largely by unfamiliar fields and their associated recovery, launch and servicing peculiarities. Sooner or later a break in a habit pattern will result in a critical omission, the consequences either embarrassingly obvious or dangerously insidious: a flight flown with one's seat safed or pinned; flying while partially strapped in or not strapped in at all; launching with a boarding ladder down or gear pins installed; an attempted takeoff with flaps up (to name a few). The ultimate results, whether disaster or near-disaster, are dictated by just how critical the misplaced procedure was. The danger of the broken habit pattern can only be lessened through vigilance. If a break cannot be avoided, the anomaly should be thoroughly briefed beforehand. For example, a crew faced with a heavy gross weight/high airfield elevation takeoff might brief leaving the flaps down before a departure turn is completed. As always, there is no substitute for conscientious preflight planning.

A more subtle threat is that posed by the many challenges to one's personal standards. When away from the roost, normally inflexible standards become malleable under the pressures peculiar to a cross-country. How often has a crew braved poor weather and pressed the approach minimums to realize a desired destination? Furthermore, consider the "static display" crew at an air show which agrees to make a few low passes at the field for the hometown folk. These instances are ripe for trouble and can at best lead to entry in a "Grandpa Pettibone" (or *even* Airbreaks — Ed) column. The assaults on personal standards seem limitless and can only be anticipated in a few cases. Therefore, cross-countries demand increasingly rigid precepts to stand up under such pressures. Professionalism determines the proper course when in doubt.

A cross-country flight offers the J.O. a wealth of experience, much of which cannot be gained elsewhere. Moreover, this experience can be bought "cheaply" as long as headwork and professionalism remain the order of the day. Avoiding breaks in habit patterns and adhering to personal standards can ensure a cross-country goes all right and not awry.

Lt. Lovdahl is an electronic countermeasures officer (ECMO) with VAQ-137 and is also the squadron schedules officer.

Constant Bearing Decreasing Range

By Lt. Rich Dawe

AN inherent hazard to aviation that comes with the onset of winter weather conditions is an increased workload for air traffic controllers as GCA pattern traffic increases. Certainly constant vigilance and attention to detail are vital in naval aviation; however, even with these in practice, Murphy's Law can be proven most easily if communications break down or if the least amount of complacency is allowed.

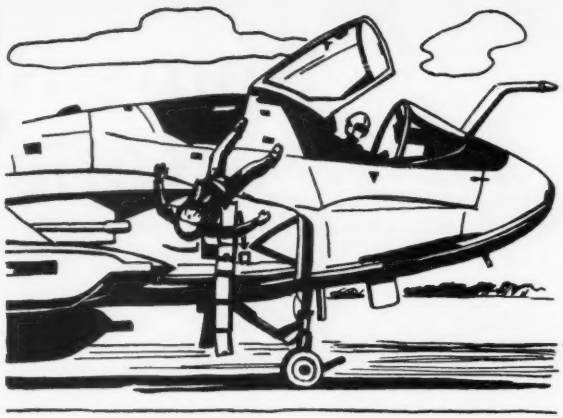
Military aviation is a profession of proven procedures and required checklists balanced by a great deal of "headwork." Whenever procedures are varied or the unexpected transpires, it adds to the already existing problems of poor weather conditions, crowded approach patterns and heavier controller workloads, which increases the potential for a breakdown of communications and increases the potential for "Murphy's Law."

An example of other than optimum weather conditions, breakdown in communications and unanticipated aircraft configurations recently took place at NAS "LO-VIS" with typical October weather prevailing. The mission was a standard NATOPS check flight for a squadron naval flight officer, which was to consist of a high altitude radar navigation route followed by returning to the GCA pattern at home field for multiple approaches to include varied aircraft configurations. The high portion went as briefed and upon their return the NFO informed approach that they were requesting multiple ACLS approaches. The weather was reported as 600 scattered, 1,000 broken, 1,800 overcast with three-quarter-mile visibility in light rain showers. Not optimum weather, but good training and adequate for the planned approaches. The controller's workload appeared relatively heavy with five to six aircraft in the GCA pattern. Following a normal Mode 2 ACLS and a simulated single-engine approach, the crew informed the controller that the next approach was going to be a no flap/no slat approach taken to a low approach. Following the completion of landing checks on the downwind leg, the aircraft was turned on to the base leg, and the crew informed the controller that their approach speed would be 169 knots on final. The controller responded stating that there were two aircraft ahead in the GCA pattern. Control was then passed to a final controller. The crew informed their new controller that this approach was a no flap/no slat approach with a speed of 169 knots. The final controller called traffic three-fourths of a mile at 12 o'clock. The crew replied that they were in clouds at 1,800 feet and once more relayed a speed of 169 knots to their controller. The controller sounded surprised by this faster than normal approach speed and a new controller's voice told the crew, after about a 10-second delay to take a speed of 150 knots, which was below stall speed for the aircraft configuration. At that time the crew saw traffic at one-quarter-mile in and out of the clouds as they lowered flaps and slats in an attempt to reduce closure speed and increase separation. The final controller then stated that the tower had instructed a wave-off of the approach and to overfly the runway at 3,000 feet.

There was no harm done and no new mishap statistics to tally, but the potential for tragedy was undoubtedly present. A review of instances such as this reminds us all of the necessity for clarity in our communications and the relaying of information and requests to our controllers, particularly during those winter months with busier patterns and increased workloads for controllers. Even though you may feel a statement or request sounds redundant, professionalism dictates you ensure a clearness of intentions and instructions between controllers and aircrew. ◄

Lt. Dawe is an EA-6B pilot and squadron LSO for VAQ-137. He is also pilot NATOPS officer for the Rooks.

The Flight Isn't Over Until. . . ?



By Lt. Bob Crumplar

THE ferry flight from NAS Whidbey to NARF Alameda was one that I immediately volunteered for when the Ops O mentioned it in the ready room. We were to fly a formation of two EA-6Bs to the rework facility, drop off one aircraft and return to home base in the remaining aircraft that evening. The trip was a good opportunity to pick up some hours, as we had recently returned from deployment and flight time was at a premium. The prospect of escaping the drudgery of paper work made the flight something to look forward to.

Both crews briefed together and all items were covered in accordance with NATOPS. Several items were specifically emphasized due to the nature of the flight. We were flying only two aircrew per aircraft as both crews were to return in a single plane. We gave up the radio in the aft cockpit by doing this, and so reduced the flight to two radios. Lost comm was therefore covered in-depth. Separation of flight due to lost sight and inclement weather was also covered in detail. Finally, as we were flying into a different and high density traffic area, we familiarized ourselves with the various TACAN stations, fixes and divert fields. After checking weather everything looked good and we felt we would not have a problem getting into our destination. From man-up to takeoff everything went smooth as clockwork. We were soon flying over the Pacific coastline enjoying the scenery spreading out before us.

However, any flight invariably experiences problems, and this one was no exception. We were unable to reach any metro stations en route for a weather update at our destination. To our dismay, the weather began to take a decided turn for the worse as we continued southward. We soon found ourselves in solid IMC conditions, with our wingman experiencing moderate icing.

We then agreed to separate the flight and continue as two aircraft. We subsequently made our request to the controllers. Unfortunately our problems continued to build. The controllers were extremely busy due to the deteriorating weather conditions and the high density traffic area. Our radios began performing in less than an optimum manner and we suffered through an exasperating period trying to make known our desires as we were vectored through thunderstorms, turbulence and icing. At last we split up and proceeded as single aircraft.

Things had been difficult, but nothing had occurred that we felt unprepared for. We had followed our briefed procedures, knew where we wanted to go and had not suffered any major problems with the aircraft at this stage. We looked forward to the safe completion of the flight.

We continued to log that (good?) actual instrument time as we prepared for our final approach. We reviewed the facilities at our destination, and paid special attention to the fact that we would be landing on a wet runway with poor braking action expected.

The landing turned out to be an uneventful one, and as we taxied off the duty I let out a welcome sigh of relief. Our wingman landed and taxied in as we were parked and chocked. As the engines were winding down and we switched off everything in the cockpit, my pilot and I agreed it was good to be on deck. The flight had been a difficult one, with poor weather conditions, radio problems, etc., and we had felt some strain and uncertainty throughout. But now the flight was over, and it was time for lunch before we headed back north.

We opened the front canopy and I exited with caution, as the aircraft was still wet. Unfortunately I realized, too late, that my normal handgrip on the aft canopy was unavailable due to it (the canopy) being closed. I reached in vain for the nonexistent handgrip, slipped on the ladder and fell 10 feet to the deck.

I was still wearing my helmet, which probably saved my life, as I hit my head on a drop-tank during the fall. I was knocked unconscious, spent several nights in the regional medical center and missed out on the flight hours from the return trip home. I was fortunate to be up and flying again in a short period of time.

Naval Aviation is a profession that demands total concentration in all phases, from preflight preparation to the ready room debrief. Our flight culminated in near disaster *after* the aircraft had safely landed and normal post-flight procedures were accomplished. Thinking that everything was complete and overlooking one item which dealt with aircraft exit procedures could have possibly cost me my life. Ask yourself, how many times could an accident happen to you after the flight was *supposedly* over? A lack of attentiveness can result in a wing crunch, a nosewheel in the catwalk, or a plane captain sucked down an intake. Remember, the flight isn't over until . . . ◄

Lt. Crumplar was the personnel officer for VAQ-137. He is also an ECMO. He is currently on a tour with the JCS in Washington, D.C.

Some Reflections on Reflecting Tape

By PRCM D.B. Leighton

FOR years, there has been a love-hate relationship between PRs, aircrewman and reflective tape on helmets. We have progressed from no tape, some tape, white, orange, purple, black tape, 50 percent, 80 percent and finally 100 percent white reflective tape on our aircrew protective helmets and flight deck cranials. This relationship exists because, historically, reflective tape on our helmets has been treated as an item of adornment rather than a passive means to enhance one's visibility and survivability for detection by search and rescue (SAR) forces.

Out of all of the SAR reports that are received year after year, the single, most important item of equipment that the aircrewman has to enhance his chances of detection by SAR forces either during the day or night is the reflective tape on the flight or cranial helmet. Radios, lights, flares, signal mirrors and other items of signaling equipment can help establish the general search area, but in the final stages of a SAR operation, direct visual location of the survivors is required. And if you can't see them, they can't be saved. All too often, the signal devices which are available to the survivor are lost, inoperative, too complicated or, in the case of survivor incapacitation, too difficult or impossible to utilize. Even if the survivor has the equipment and the knowledge to utilize the signaling aids available to him, who will operate it if he becomes unconscious or is badly disabled? Reflectivity is a simple, effective, passive means of detection requiring no effort on the part of the survivor for activation. Its success is evident by the majority of the SAR reports which state: "Reflective tape on the helmet has been the primary detection device during rescue operations."

When we speak of reflective tape on our helmets, what we really mean is "retroreflective" tape. The term "retro (or reflex) reflective" describes the capability of reflecting light back to the light source from almost any inclination. Sounds a little confusing? Let's look at the three basic types of reflectivity — diffuse, mirror and retro (or reflex) reflection. Diffuse reflection sends incident light rays off in an infinite number of directions, reducing the amount of light reflected in any one direction. Covering your helmet with a white cloth would cause diffuse reflection. Mirror reflection sends incident light rays off at an angle equal to the angle they came in on. It reflects a high percentage of the incoming light, but only in one direction. Your helmet was fairly mirror-reflective without retroreflective tape. Retroreflection sends incident light rays back the way they came. The implication is that a person shining a light toward a retroreflective object will be most likely to see it.

An important factor in determining the distance at which retroreflective tape is visible in darkness is the brightness or reflectivity of the tape (the ability to shine brightly when illuminated by a searchlight beam). Retroreflective tape that is called white or clear is vastly superior. Colored retroreflective tape is inherently less reflective because the color is a topcoat and the light must transmit through the color incoming and outgoing with a reduction in light transmission. When compared to white (clear), the following colors have various percentages of *reduction* in light transmission:

Color	Percentage of Light Reduction
White or Clear	0%
Yellow	30%
Orange	64%
Red	79%
Black and green	86%
Blue	94%
Brown	99%

Based on SAR reports and technical data review, the principal benefit of retroreflective tape is nighttime survivor visibility, with enhancement of daytime visual acquisition of a lesser, although important, nature. In a diminished light, the detection range of an adequately taped helmet can be up to eight times greater than that of an untaped helmet; however, in daylight the reflective tape is not flourescent, or abnormally bright, but exists only as a color. RED or ORANGE have been determined to be the colors most discernible to the human eye. Test reports indicate RED is the color with the highest contrast to the varied backgrounds of land and water.

The inherent advantage of retroreflective tape (WHITE/CLEAR) is obvious. A change to the general NATOPS Manual OPNAVINST 3710.7K, Change Two (CNO WASHINGTON DC 171949Z SEP 84) requires that the protective helmet and visor housing shall be 100 percent covered with WHITE retroreflective tape. Up to 30 square inches of colored retroreflective tape may also be applied, so long as the WHITE tape remains clearly visible from all directions. Interim Rapid Action Change No. 21 (NAVAIRDEVCEN WARMINSTER PA 182220Z DEC 84) to NAVAIR 13-1-6.7. Aviation Crews Systems Manual on Aircrew Personal Protective Equipment has the stock numbers and installations and removal procedures for retroreflective tape on helmets.

A major factor to being either a statistic or a survivor is detection. A properly taped helmet is the single, most important element in locating a survivor/downed aircrewman. In the event he is incapacitated or the equipment is either lost or nonfunctional, retroreflective tape properly applied to his helmet is the only thing he has going for him. To an individual lost in the sea at night, this added visibility offered by retroreflective tape may spell the difference between life and death. It is ESSENTIAL that we afford every person who wears a protective helmet, flight or cranial, all of the increased detectability that we can afford.

Master Chief Leighton is a life support equipment analyst at the Naval Safety Center.


NAVY

Training Is Survival

By Lt. A.Y. Inouye

. . . As we lined up on final for the third pickup, a simultaneous loud bang and tremendous jolt shook the whole helo airframe, causing the nose to pitch up violently and yaw to the left. . .

WITH clear weather predicted for the entire day, I was very eager to commence the short vertical replenishment (VERTREP) evolution with a cruiser from the battle group. It was evident that I wasn't alone in being anxious to launch our HH-46A Sea Knight helicopter. The other crew members (helicopter aircraft commander, two aircrew) appeared well rested and glad to have been scheduled to fly on this particular morning. As the sun came up over the horizon, we launched off the deck of our combat stores ship (AFS) and prepared to start the VERTREP evolution. From the air, the many "small boys" from the battle group could be seen already positioned to come alongside our AFS to conduct underway replenishment (UNREP).

Having been in the Indian Ocean for two months and successfully completing numerous VERTREPS under much more demanding weather conditions and higher tempo operations, I felt we could perform this evolution with minimal delay. Teamwork, being an extremely important factor in any VERTREP evolution, would determine the success of each task accomplished. The flight deck crew and

aircrew had grown into a very successful team while in the Indian Ocean and worked exceptionally well during every VERTREP. Our skills were finely honed, giving me complete confidence in everyone's abilities.

As the VERTREP evolution commenced, the first cargo pickups and drops were completed without any complications. As we lined up on final for the third pickup, a simultaneous loud bang and tremendous jolt shook the whole helo airframe, causing the nose to pitch up violently and yaw to the left. Unknown to me at the time, the helo broke into three distinct sections in midair (aft rotor head and pylon, cabin section, and cockpit section with forward rotor). Neither my control input nor the HAC's corrected the situation and we autorotated uncontrollably to the water from about 100 feet. Upon water impact, the cockpit section was immediately submerged. The whole incident, having happened so quickly, never gave me a chance to panic. The only thought which crossed my mind while underwater was that I had to get out of the aircraft. Without thinking about what to do, I instinctively waited for all violent motion to stop and then reached down to jettison the door. Fortunately, the absence of any obstructions outside of the cockpit allowed the door to break free as advertised. My next reaction was to grab for a reference point so as not to get disoriented inside the cockpit.

In the past, I had heard stories of people becoming disoriented after egress and being unable to determine which direction to swim in order to reach the surface. In my case, probably because the incident occurred during the day, the direction toward the surface was easily determined. Not wanting to puncture my life preserver assembly (LPA) on the debris around me, I chose not to inflate while underwater and swam approximately 10 to 15 feet to the surface. Once on the surface, I inflated my LPA and waited for help.

A motor whale boat from a nearby destroyer was alongside within three minutes of water entry. Their quick response resulted in both the HAC and myself being rescued shortly after egress. Although the search and rescue (SAR) effort to recover the two crewmen continued for some time, they were never found.

Several months have passed since that mishap. Looking back on it, I am very glad to have been one of the two survivors rescued that morning. The loss of two shipmates and the things I remember about them will never be forgotten.

There are a number of things to which I can attribute my survival.

• *A properly working inertial reel lock.* When the simultaneous bang and jolt occurred, although my seat was not locked, I was thrust back and my inertial reel locked pinning me tightly against the seat back. Upon water entry, minimal injuries (bruised right hand and a few minor cuts) resulted due to the fact that I was properly strapped in.

• *Proper training in emergency egress.* After surviving water impact, it goes without saying that my previous training in Pensacola, Fla., and Miramar, Calif., on emergency egress increased my chances of survivability. The helo dunker (9D5) emergency egress training was a definite plus. Having submerged immediately and being partially in a state of shock, I am sure that without proper prior training my efforts to escape from the cockpit would have been hampered to some degree.

Looking back on the mishap with a clear mind, the only mistake made on my part during egress was a failure to disconnect the radio cord. Fortunately, it did not cause any problems in exiting the sunken cockpit, perhaps because of my high adrenalin level. As those of us who have experienced the 9D5 emergency egress trainer know, the proper procedures once all violent motion stops are: (1) cord, (2) door, (3) reference point and (4) belt (CDRB). Once those steps have been completed, a strong pull to exit the helo is required, remembering not to inflate while still inside the aircraft. The helo community knows the difficulty in egressing from a helo and the importance of the 9D5 emergency egress training. Those outside the community anticipating riding on helos should go through this important course which could someday save your life, as it did mine.

• *Removing metal locking snap on kneeboard.* While going through the fleet replacement squadron (FRS) in San Diego, Calif., it was brought to my attention that the metal locking snap on the kneeboard strap, if not removed, could possibly catch on something during egress and complicate escape from the cockpit. Although I never gave it much thought in the past, I did remove it, allowing the kneeboard to tear away from my leg. I'm not sure whether it contacted something in the cockpit or not, but it did come off without hampering my escape. Although a small detail, it could very well have ruined my already disastrous day had I left the snap on and had it caught on something during egress.

• *Quick response time to the SAR effort by the "small boys."* After being rescued by the motor whale boat, I learned they were in the water only three minutes after the mishap. Two other "small boys" also had their own motor whale boats in the water within a short period of time. The professionalism and thorough training displayed by the "small boys" and their motor whale boat crews made it possible for the HAC and myself to be rescued in a matter of minutes.

One can always say that an incident like this will never happen to me, and hopefully it won't. Bearing the title of naval aviator is a prestigious honor, but it can be a very hazardous one. Proper training can definitely enhance the survivability of the aircrew as well as allow for a ship to effect a quick and successful SAR. I know a lot of things which happened that morning could not be controlled by either the HAC or myself. I can honestly say I am here today because of a bit of **LUCK** and a lot of **PROPER TRAINING**.

Lt. Inouye flies H-46s with Helicopter Combat Support Squadron FIVE (HC-5), which is based on NAS Agana, Guam. He received his wings in July 1983 and then trained in the H-46 at NAS North Island, Calif. He joined HC-5, made an Indian Ocean deployment and is now an HH-46A helicopter aircraft commander with some 550 hours flight time. Lt. Inouye is a 1981 U.S. Naval Academy graduate.

The Horse That Threw You

By Cdr. C.B. Place

A familiar cliche for we who read Western novels has the good guy climbing back aboard the wild-eyed, bucking mustang (again and again) until the horse has been tamed and our hero (a regular Jack Armstrong type) reigns supreme. It makes for a nice story and is ingrained in our American folklore. A true man will never give up. When it comes to pilots and planes, my experience is the horse wins.

From the first to the last day in the career of a naval aviator, we were fed a steady diet of ego trips to remind us of our lofty status and the elite company we share. We come from the 98th percentile. In mind and body we far excel the common man. We are the chosen few; outstanding is the norm. How many naval aviators will miss this question? T or F: There are more brain surgeons than naval aviators. We all know brain surgeons are a dime a dozen. After a month at Pensacola of this steady diet, our egos have assumed the proportions of a blimp. However, this is not bad. We need a good, solid, ego-bound image of ourselves. We use it to motivate us to our standards of performance, to develop our professional ethics, to lead us into dangerous and challenging missions and to get us home on some dark and stormy nights.

Back to the horse. Some of us get thrown during our careers. When the plane comes apart or the arresting cable breaks, or the situation is not of our doing (material failure, others) we are provided a superb opportunity to excel (pro of the week) and gain some intense prestige which fairly makes our egos almost unbearable. On the other hand an adverse occurrence involving pilot error is a crucial blow to our self-image. Only common men make errors. The qualifications for inclusion within the elite group have been challenged. We are no longer certain of our capabilities. American folklore then says climb back aboard partner, and show us you still deserve membership in the club. I suggest that a pilot error occurrence causes a massive wound to the ego, and the pilot in question is being forced into a no-win situation when he's hoisted back into the cockpit. He's not going to refuse the offer and confirm everyone's suspicion that he's a non-hacker. In true Armstrong fashion he'll climb back aboard and tell you thanks. Think of your personal experience. Who do you know who's had a pilot error incident? (It doesn't have to be a crash.) Does a previous super stick start getting wave-offs, no grades? Does performance in the environment of the incident deteriorate? Is the first incident followed by another? Chances are yes to all the questions and the Navy loses another aviator (funeral or FNAEB), and maybe an aircraft, because American folklore is allowed to overcome statistics and psychology in guiding our commanding officers to their decisions.

Personal experience. I was an OK Fudd (E-1) pilot, (not much finesse but a lot of bull-headed determination) who dropped a mainmount in the cat walk on a first night landing in 30 days. No scratches or bruises and, true to tradition, in the cockpit the next night. Suddenly I couldn't buy an OK pass, day or night. An up-close, personal counseling session with the OinC ("Straighten out or FNAEB") didn't leave me warm and fuzzy. Salvation came in the form of an early transfer to fill an empty billet in the RAG. (Serendipitous or conspiratorial, I've never found out and don't really care.) For 2 ½ years my bruised ego was healing in a non-carrier environment. I could still fly the Fudd and even transitioned to the Hawkeye. I became a very good RAG instructor. I resurrected my reputation in the community. I rose once again above the level of the common man. I even got a couple of OKs when I finally CQ'd in the E-2. I know of several other incidents involving people not so fortunate as I which support my theory. One pilot error followed another and then he was gone.

For you COs out there, I submit you aren't doing yourself or the Navy any favors — and you sure aren't doing your aircrewman any favors — by putting the cripple right back into the airplane. This situation can certainly apply to NFOs also. We need the option of transferring them into a more benign environment for a convalescent tour of duty. Chances are he was a super-stick or topscope and could very well become an ace-of-the-base again with the proper nursing. Retention figures and replacement costs (people and planes) may make this blantantly un-American notion more palatable.

In any walk of life which treads a tightrope, the standards are tough — but not as severe as the consequences of mistakes. We do not have the option nor luxury of convalescent flying duty of all mishap pilots or crew. Every pilot in a seat is expected to be mission capable. Over the years, the back-in-the-saddle approach has proven itself capable of restoring that needed ego and keeping units up to strength. Post-mishap scrutiny is normal, expected, and one of the ways we watch out for one of our own who stumbled. A future article will address more fully the after effects of pilot error mishaps on one's flight and professional career. — Ed. ◄

Cdr. Place is an E-2 pilot and commanding officer of VAW-113.

Teamwork or Turmoil; No!

By Lt. Billy Martin

MOST of the time, the coupling of senior and junior aviators in the same crew optimizes weapon system utilization and flight safety. Sometimes, however, who is really responsible is not as black and white as 3710 might have us believe. Here's some food for thought.

As I looked outside the ready room window, it was clear that the forecaster's present weather observation was accurate. Eight hundred scattered, 1,000 overcast, three miles visibility in fog and rain. Marginal weather for night FCLPs, but as long as the weather didn't take a turn for the worse, we could fly a special VFR night pattern. No sweat. Only three planes in the FCLP pattern tonight anyway.

I gathered my crew together, myself (a lieutenant junior grade at the time), my right seater, an NFO mission commander instructor (a full commander), and my back seater (our aft cockpit observer and a new ensign in the RAG). The brief was thorough and concise and I made a point to discuss the bad weather and other contingencies should the weather take a turn for the worse. Taking a trap on a wet runway with standing water was discussed as per the FRS's SOP and NATOPS, and I mentioned that should the weather fall below special VFR mins we could expect to enter the Automatic Carrier Landing System (ACLS) pattern for practice CCAs. Just then, the LSO stuck his head around the corner and told us to expect ACLS approaches. No problem. We just briefed it.

Had I forgotten anything? No, it was a thorough brief and I took pride in leaving no stone unturned.

In maintenance control, I found out I was flying an aircraft with a known anti-skid problem. Twice that past week during the daytime, I had flown this aircraft and had anti-skid problems during rollout. I thought to myself, "This isn't the best aircraft to be flying when trying to land on a wet runway." As the mission commander began to browse through the book, I pointed out the repeat gripes to the anti-skid system and told him we could probably expect the same tonight. I mentioned that taking a trap would be a good idea tonight and his response was a short "I doubt it."

"I doubt it!" An aircraft with known anti-skid problems and the response is "I doubt it!" I thought back to the brief. Did I brief the weather? Yes. Did I brief taking a trap on a wet runway with standing water even with a good anti-skid system? Yes. But maybe this fellow aviator with over 3,000 hours in the air and over 1,000 hours in type knows something about safely landing this particular aircraft on a wet runway that I'm not aware of. I will digress from the story for just a second.

OPNAVINST 3710.7k says, "The pilot in command is responsible for the safe and orderly flight of his aircraft and the well-being of the crew." It also states, "The authority and responsibility of a pilot-in-command is independent of rank or seniority in relation to other persons participating in the mission or flight except for the following:

- Officer in tactical command embarked.
- Flag or general officer embarked."

This section of OPNAVINST 3710.7k reveals a confidence entrusted to pilots-in-command rarely given to most in other walks of life. Even our NATOPS manual reveals an absolute faith and trust in those of us honored to wear these wings of gold. Clearly stated in the front of your manual, it says that even your NATOPS is not a substitute for sound judgment. As the pilot-in-command, we are expected to assess compound emergencies, available facilities, adverse weather or terrain or other considerations affecting the lives and property of others and make modifications to procedures found in our NATOPS if need be.

I didn't know it then, but on this night, I would forget what being "pilot-in-command" really meant. As I walked to the aircraft, I had seen that the weather had indeed deteriorated and the rain was now falling steadily.

Preflight, taxi and takeoff were normal. After takeoff, I

; *It's not always clear-cut*

Yes!

climbed to 2,300 feet and was vectored to a downwind heading for the first of my ACLS approaches. My two playmates were in front of me on their approaches and I heard the first aircraft get switched to paddles frequency on final. That's odd, I thought. Usually, we stay up radar and paddles switches up to our assigned frequency. In a minute, it became clear that they were going to attempt to work the special VFR FCLP pattern since there were only three aircraft to work with.

After about five looks, the weather took a decided turn for the worse. No one had sight of the other, so we were all told to complete full stop landings. After the first aircraft touched down, the braking action was reported as poor. By now, I was just turning downwind and told everyone in the aircraft that we would be taking a trap. The braking action was poor and we had suspected anti-skid problems. The mission commander's response was "Negative, we don't need to."

By now, the second aircraft had touched down and called the braking action fair. The rain was coming down so hard my right seater constantly held the windshield air on so I could see out the front windscreen. There was no doubt in my mind as I turned to final that my hook should be down. But I decided to try it, hook up, with a knot in my stomach and respect for authority.

We turned to final and called the ball. At touchdown, as I suspected, the anti-skid light came on. I felt for the switch and recycled, the light went out. A second later, the light was on again. I reached down again to turn it off and by this time I could tell that we were hydroplaning. Slowly, I applied the brakes. The anti-skid was now off and I could feel I was losing controllability. The nose began to track right, so with the use of rudder and a small amount of left braking, I tried to center the aircraft. I thought we had it made as the nose quickly came to the center, but the aircraft kept on going left rapidly. By now, I was no longer in control and just along for the ride. "If I can just make it to the long field gear, "I thought as the nose swung 45 degrees off track. Quickly, I pulled the hook and prayed that the arresting gear would stop us.

What a wonderful feeling that tug was as we came to a stop. Not a word had been said by anybody the entire time. Why we didn't go off the runway was probably more luck than skill. I turned to the mission commander and simply said, "That's why we take a trap." No reply; but his face told me he had learned a valuable lesson as well.

I, as the pilot-in-command, had let *my* crew down. Although still a nugget RAG pilot, *I* had enough experience to know that taking a trap was good sound judgment. I was angry with myself. I was the pilot-in-command responsible for the safe and orderly conduct of my aircraft. My decision was cautious and correct. Had I done my job as pilot-in-command in accordance with 3710, I would have said, "No sir, we're taking a trap." Did I know that up in the air? Yes! In this case, the voice of one with more experience coupled with my respect for his seniority prevailed, overcoming good judgment and common sense. It was a tough position to be in and I made the wrong decision.

How many aircraft have been lost due to a junior member of a crew failing to speak up when he should have to a more senior crew member? Undoubtedly a few, and some are likely written in blood. We were lucky that night, and we were all reminded of the gray area between pilot-in-command and mission commander authority. I had allowed a situation to happen which I had said never would: rank and experience, instead of good sound judgment, made a decision in my cockpit. The pilot-in-command has 3710 clearly behind him, but it's a team effort in multicrew aircraft with a lot of good crew coordination and usage inputs often coming from senior crew members. But in the instances above and in others you may likely recall, just remember pilot-in-command has the final authority and responsibility for the safe and orderly flight of his aircraft and the well being of the crew. ◄

Lt. Martin is an EA-6B pilot and squadron LSO with VAQ-139, currently deployed on the USS *Constellation* (CV 64).

Skiing Lessons From an A-4

By Lt. John W. Casey

DURING my student tour at NAS Southwest I had the distinct pleasure of joining the Skyhawk ski club. The initiation took place on my second formation flight, which was my third solo flight in the TA-4 Skyhawk. We planned to practice section maneuvering, break ups, rendezvous and section approaches. Once safely airborne, I raised the gear and flaps as usual, checking them up and locked. I heard a "thump" as the gear came up and locked. All engine indications checked normal. Once in the operating area, we did the standard formation basics; practicing maneuvers till I got them right. Then came time for the practice section approach: Two planes simulating a TACAN approach starting with a descent, dirty up, level off and missed approach.

I was hanging in there pretty well as we started down. We slowed the aircraft to gear speed then the instructor signaled for the gear and flaps. The lead called, "Three down and locked, over to two." When I glanced down to check for the three little wheels on the position indicator, the nose gear indicated unsafe. I reported the problem to my lead and he confirmed that my front "roller" had not come down.

We changed the lead and leveled off at 10,000 feet for a visual inspection. The instructor pilot gave me the bad news: The shrink link, or retracting link of the nose wheel was broken and strut pressure had lodged the nose wheel in the wheel well. We proceeded to contact base and both broke out our pocket checklists. I executed all the "prescribed" procedures for an unsafe nose gear: Positive and negative G s, yawing and recycling, all to no avail. Now my stomach started to churn, realizing that my second formation flight would end with a landing in extremis. As I was mentally preparing myself for a trap with no nose gear, the experts back at home plate came up with a better idea. They said that this particular problem calls for a belly landing with the cross deck pendant removed. Heck, I thought, why do that, when I can snag a wire in-flight and stop quickly? It was explained to me how much safer it would actually be to land on the drop-tanks than attempt an in-flight. Thank goodness I had two tanks! Preparing myself for the worst, I foolishly asked base, "If I go off the runway, should I eject?" I was told it would be a decision I would have to make; in other words, "You're a big boy now . . ."

I proceeded back to the field burning the fuel down to a minimum. The instructor went on ahead to land when he himself started getting low on fuel. I was told to set up for a 10-mile straight-in and that an LSO was on station. Uncomfortable as it was, I checked all gear up and locked flaps full down. I selected tank transfer one more time to ensure the tanks were as empty as possible, reducing the threat of fire. As I intercepted the runway centerline at 10 miles, I did a little praying. At five miles, I slowed the aircraft to optimum angle of attack. At three, I started it down.

I tried to fly the best approach I could, so that lineup and sink rate were well under control early in the approach. After I called the ball, I started to decell and the LSO promptly said, "Fly it on speed." Applying power, the inevitable soon happened. The runway was under me so I started to flair. As I flaired, the aircraft decelerated and became extremely cocked up just before impact. The plane touched down and the nose fell through breaking off the nose cone. The plane started drifting to the right, but a little left rudder helped out as the plane came to rest just right of centerline after 2,000 feet of slideout. Securing the engine about half way through the landing allowed me to open the canopy normally on engine wind down. All those egress drills really paid off; witnesses said I was practically out of the plane before it stopped. I forgot to safe my seat as I egressed, but fortunately didn't fire the seat by catching my foot in the lower handle. I kissed the ground after I was well clear of the aircraft. (A real crowd pleaser!)

I've had plently of time to think about that day, the things I did right and the things I did wrong . . . First, I had been concerned over the advice coming from home base. Now I realize they were sitting there calm and comfortable reading me the procedures right out of the old blue book. In retrospect, the landing was actually very easy and controllable. Secondly, the LSO told me to fly it on speed with no discussion of the flair. But how many LSOs do you know who have waved a gear up pass? I think the approach should have been flown flatter and faster, gently easing the attitude to land flat. That would have kept the nose from falling through preventing damage to the nose cone. I also question the use of full flaps for the approach. With half flaps the aircraft is faster and flatter but research is needed concerning these effects. Finally I think we should incorporate in our egress procedures, "check seat safe" before we climb out. Personally I have never done any egress training from a cockpit in which the canopy was down and locked/seat armed.

A check with the folks at Pax River elicited the following observations:

1. A test program for gear-up landings is quite expensive — one landing, one damaged aircraft. Therefore, there was not enough data to make firm conclusions.

2. Fly your aircraft as you know it. Don't change normal habit patterns, and don't perform something new until you're adequately prepared for it. — Ed.

Lt. Casey is an A-7E pilot with VA-27.

John Duell
Todd Duell

Editor's Note: Approach does not usually honor civilians in the Bravo Zulu column. This incident warrants a departure from the norm.

On the afternoon of 31 March 1985, Lt. Col. J.W. Capito of VMAT-203 was flying an AV-8B over Long Island Sound. The engine began to vibrate and then it shut down. As his wingman declared the emergency, Capito ejected, landing in the 38-degree water. He managed to get in his raft, but the air, which was also 38 degrees, was rapidly draining him of body heat.

Boston Center had activated SAR efforts when Capito ejected, but his wingman had lost sight of him and the estimated position of the raft was fairly rough. He would have spent a while floating and fighting off hypothermia if it had not been for Mr. John Duell and his son Todd.

The Duells heard the SAR call on the base radio at a small local airport. They rushed to a Cessna 172 and launched, hoping they could help. Shortly after takeoff, Capito saw them and fired a pencil flare which Todd spotted. The Duells contacted the Connecticut State Police on VHF. They, in turn, relayed to a Coast Guard rescue boat which the Duells vectored to Capito's raft. It was estimated that the Duells' actions got Capito rescued at least 10 to 20 minutes sooner than he could have been reached by SAR. With the water/air temperature at 38/38 they prevented serious hypothermia and possibly saved Capito's life.

Mr. and Mrs. John Duell and their son Todd.

Judy Ahrens

BRAVO ZULU

PH3 Brewer

Lcdr. John Flores (left),
Lcdr. Rich Sluys (right).

Lcdr. John Flores
Lcdr. Rich Sluys
HS-2

Lcdr. Flores (HAC) and Lcdr. Sluys (co-pilot) launched on a routine night plane guard mission from USS *Kitty Hawk* (CV 63). As the SH-3H helicopter lifted from spot No. 5 for takeoff, the aircraft began a sudden, uncommanded right yaw. Flores applied full left rudder to no effect, then quickly lowered collective. When the wheels touched the deck, he instantly applied forward and right cyclic in the direction of movement to prevent the aircraft from rolling over.

After the aircraft was secured, investigation revealed that the flight control rod assembly tube located between the negative force gradient spring and the tail gearbox pitch control bell crank had failed, causing complete loss of tail rotor control.

Flores' quick, decisive actions, ably supported by Sluys, prevented a catastrophic mishap on a crowded flight deck at night. ◄

No Respect

By Lt. D.H. Meyr

OUR two intrepid lieutenants were getting ready to take their A-6E Intruder on yet another night surface search and control hop. Together they had 1200 hours in the A-6 and had gathered some pretty impressive accolades for a junior crew. What did they get this night? Bombing? Tactics? War at Sea? No respect at all and SSC.

Well OK, maybe they could get some more good forward looking infrared work, practice some Harpoon missile shots and some night moving target work against those unwitting SSC targets. After all, the sea lanes southeast of Okinawa are busy. They briefed, preflighted and manned pretty much as normal. Sometimes it seems that if you've flown one night SSC hop you've flown them all. Rattlerattlebang and off they went into the warm nothingness of a South Pacific night.

Our two aviators settled back for a routine hop. Maybe this sortie wouldn't be too bad. Fly around for a while, call it training, relax, look at the stars and come back to bag one of those all important night traps.

Contacts were everywhere! Hotdog! A chance to grab some good training and bring back some great videotape of the flir and radar. A real slow pass was called for to extend the time over the contact and maximize taping opportunities. This was great . . . piece of cake . . . then . . . thump!

A quick glance around revealed the port outboard slat extended 3 inches, and they had some control difficulties. They decided to head back for the ship before slowflighting the airplane to cut down the "divert" distances. Hopefully, that wouldn't be necessary as this was being called "blue water ops" and the nearest divert was at least 320 miles away! When close enough to home, the pilot cycled the flaps and slats in a attempt to get the offending slat to fully retract. As the slats came out, the port inboard slat jammed against the outboard slat and was bent downward at a 90-degree angle relative to the wing.

Well now what? A control check showed maximum control speed was 30 knots faster than a normal "on-speed" approach with some light buffet and reduced lateral control. A rapid decision was made to bingo the crew to the beach on a night emergency divert. They pulled out the pocket checklist but it didn't quite address, "Port slat swinging in the breeze."

OK, time for more headwork. Fuel flow, airspeed, altitude, distance remaining, winds, conditions and facilities at the divert — all was factored in and it looked OK. Not good —OK. That darn fuel flow looked way in excess of what it should be for a bingo. It would bear constant watching against fuel remaining. About 175 miles from the divert field, our diverted duo looked at the fuel again and correctly figured that they "couldn't get there from here." They decided to jettison their empty tanks and bomb racks. It worked! Two whole minutes of gas was computed to be remaining at the divert. Not the bingo charts 2,000 pounds of gas, not the 700 pounds of gas NATOPS says the engines may flame out at, but two minutes worth. That kind of margin gives you no comfort at all, especially if you have a fat finger on the charts.

At last, contact was made with the divert field. Thoughts started to run of relaxing, impressing some local lady with their aviator prowess, chuckling about lessons learned, but mostly about getting on deck!

Another call to the field brought them the worst news of the night, the whole airbase had a power outage! There was no runway lighting! Tower couldn't even give them clearance to land because they couldn't see the field from the tower! A "proceed at your own risk" clearance was given as there was no gas left to consider a secondary divert. Talk about getting no respect!

Two "follow me" trucks parked at the approach end of the runway to mark it with their headlights. With the remaining control authority the pilot flew a flawless pass to a field trap, rolling out with less than 800 pounds of fuel remaining.

Respect NATOPS, your training, other's inputs, respect every hop and above all RESPECT your own headwork because just when you think you have NATOPS down cold and you're getting no respect at all. . . ◄

Lt. Meyr is the assistant safety officer in VA-115, an A-6 squadron based in Japan.

Survival Word Scramble

Words associated with aviation survival can be found in this puzzle. The words can be oriented up, down, backwards or diagonally.

F J S O H B E T U H C A R A P R Q U
B L T C O M P A S S X O K J V Z L N
S O R P I I Y I L U F D G A U S T R
I T O W S R W G H R L B S C Q F C H
G E B T T R H T N V A J D K N I F E
N M E U S O I X A I R D C E B F K J
A L L I T R S E O V E K I T F D M E
L E I Q R O T N N A S Z X O L U W C
B H G M A U L E F L A S H L I G H T
L F H P P I E G S V I S O R E L A I
A R T I D S J Y V E B O Y G L O N O
N D E T N P E X M S Z Q T J B V A N
K I K C O V D O G T A G S R D E O J
E F G M R R E K R A M E Y D N S G Z
T O S P F L I G H T S U I T F Q W C

JACKET
KNIFE
MIRROR
OXYGEN
PARACHUTE
RADIO
SIGNALBLANKET
STROBELIGHT
SURVIVALVEST
VISOR
WHISTLE
BOOTS
COMPASS
DOGTAGS
DYEMARKER
EJECTION
FLARES
FLASHLIGHT
FLIGHTSUIT
GLOVES
HELMET
HOISTSTRAP

If your trusty bird flies like it was possessed, you just may have an EMI problem. Report it without delay.

EMI

Less Mysterious

By Cdr. Robert S. Erb and
CWO3 Jack A. Heilman

An H-53 crew had just waved off two night approaches to an LHA. The weather was so bad they never even saw a glimpse of the ship at minimums. Their cargo was badly needed on board, so the aircraft commander decided to give it one more try. Suddenly, the cockpit lit up with more yellow lights than he had ever seen at one time — BIM, TRIM, AFCS . . . too many to count. He also felt a strange "kick" in the cyclic.

On another night, half a world away, an A-6E was just about to lock up the ACLS for a test Mode I recovery. The crew didn't particularly want the hop, but OPS had said that it was really necessary — a part of OPEVAL — to check out Mode I. Besides, in this case, it was CAVU to the moon and a freebie. They were locked up, looking good and talking to Paddles. Suddenly, they lost lock and got runaway trim —nose up and a frantic, "Wave Off! Wave Off!"

Two seemingly unrelated incidents half a world apart —right? Wrong! As it turns out both of these incidents could have been caused by electromagnetic interference (EMI).

Unfortunately, the source of the EMI in both of these cases was the ship to which the approach was being made.

What is EMI? It is a small part of the field of *electromagnetic environment effects* (E^3). This is the study of how our aircraft and ships react to the electromagnetic (or radio) energy in which they operate. Only now are we beginning to understand just how broadly our hardware is affected by the vast amount of energy which exists around us in day-to-day operational environment.

Let's break E^3 down into its component parts. They include:

Electromagnetic Compatibility (EMC) — Basically addresses the problem of how well systems within one airframe/ship interact with the proper operation of another. (In A-6E testing, it has been found that certain UHF frequencies, if used under the right circumstances, will cause an ACLS unlock.)

Electromagnetic Vulnerability (EMV) — Measures the susceptibility of a system to external electromagnetic energy. (The CH-53E caution and warning system has shown, again in test and under certain conditions, that it is vulnerable to external energy fields.)

Electromagnetic Interference (EMI) — The interfering signal from whatever source that disturbs a system's proper operation.

Electromagnetic Pulse (EMP) — A nuclear burst releases a very powerful pulse of RF energy. Our systems are now being tested to determine how well they can withstand this extremely short-lived pulse.

Electrostatic Discharge (ESD) — A system can suffer subtle degradation of performance as a result of a static shock discharge. Current electronic equipment can be damaged by a static discharge so small that you would not feel or hear it.

Radiation Hazard (RADHAZ) — The effects of electromagnetic radiation on people, material and ordnance.

By now you are probably saying, "So what?" or "What are you doing to fix it?" Let's talk about what is being done and, more importantly, what *you* can do to help the process.

Commander, Naval Air Systems Command (AIR-516), sponsors the ASEMICAP (Air Systems EMI Corrective Action Program). The program has essentially five parts now functioning: (1) data collection from the fleet, (2) class evaluation of fleet aircraft, (3) fleet feedback on class evaluation results, (4) development of engineering change proposals (ECPs) to correct discovered deficiencies and (5) coordination to fund and install the ECPs. Also, all proposal packages for new procurement aircraft now receive a thorough E^3 review before release to industry for proposal.

The two parts of this process in which you, the fleet operators, can make the biggest contributions are in fleet feedback on class evaluations and data collection from the fleet. As an airframe class evaluation is completed and the final report issued, personnel from the Naval Air Test Center and Naval Surface Weapons Center are made available through the TYCOMS to brief the results and solicit fleet experiences with the discovered discrepancies. This allows the NATC/NSWC team to properly categorize the criticality of problems by bringing your experience to bear.

Data collection from the fleet falls into two categories: using OPNAVINST 4790 procedures to report incidents and using the "EMI Hotline." Whenever you run across an electronic system/subsystem gripe that doesn't make sense, report it via the OPNAVINST 4790 procedures: i.e., Hazardous Material Reports, Quality Deficiency Reports, etc. This is particularly true if the glitch occurs near a strong energy source such as ship, air station or commercial radio/TV station. Please include the following addressees on any message reporting possible/potential EMI incidents: NAVAIRENGCEN Lakehurst, NJ; NAVAIRDEVCEN Warminster, PA; NAVAIRTESTCEN Patuxent River, MD. The "EMI Hotline" is a 24-hour-a-day line directly to the Naval Safety Center. It is to be used *in addition to* the normal OPNAVINST 4790 procedures whenever EMI is suspected as a cause of some gripe on your aircraft. The hotline should be used to call immediate attention to a suspected EMI problem. The number is (804) 444-3494 or Autovon 564-3494.

So the next time you are out flying and become convinced that some ghosties and ghoulies have decided to hitch a ride, consider that your trusty flying machine just may have an EMI problem. Then, report it. The mechanism to solve the problem is in place, but it needs information to make it work. You are the source of that information! ◄

Cdr. Erb is avionics weapons officer for Commander Naval Air Force, U.S. Atlantic Fleet, NAS Norfolk, Va. An Annapolis graduate in 1968, his previous assignments included the Navy Space Project, Naval Electronics Systems Command, and VAQ-137, Whidbey Island, Wash.

CWO3 Heilman is avionics maintenance safety analyst for the Naval Safety Center, Norfolk, Va. Previously he was with HC-6, Norfolk, which included a Mediterranean deployment. He was an avionics chief for 11 years.

Gone With The Wind

The Turkey Buzzard Meets the Hornet

By Capt. R.C. Dale, USMC

IT was to have been an uneventful return. The F/A-18A squadron had completed a successful week at NAS Oceana, participating in SEABAT with Carrier Air Wing Thirteen. The proposed return to the West Coast consisted of two VR low level routes with an RON at NAS Pensacola. The aircraft would fly two instrument legs to complete the return home. The planning was thorough and the cross country was approved. It just never went as planned. The section of aircraft returning via Pensacola never got that far.

The weather brief was obtained and the forecast was beautiful from Oceana to Pensacola. Clouds were few and far between on both low level routes, and MCAS Beaufort was chosen as the destination on the first leg. The flight brief was thorough and emphasized route restrictions, hazards (towers, airports, wildlife reserves, birds, congressional noise avoidance areas) and various items of interest along both routes. Both routes were planned the previous day, with separate charts emphasizing route restrictions and divert information. I was to lead the first half of the first flight and the second half of the second flight. Based on our respective previous experience, the mission commander, would lead the first flight into MCAS Beaufort and I would lead the second flight into NAS Pensacola.

The section took off and proceeded to fly the first VR route on the way to MCAS Beaufort. The section was positioned with the lead aircraft at 500 feet AGL and 420 KCAS, with the wingman 4,000 to 6,000 feet abeam and 100 feet stepped up. At the halfway point on the first VR route the lead was exchanged and the route was completed. The section proceeded to MCAS Beaufort to refuel. Once we received our fuel and IFR clearance, the section departed and began the short 10-minute trip to the entry point for the second VR route. The mission commander was leading the first half of the VR route and I was positioned abeam him on the left side and slightly stepped up (600 feet AGL). We were 25 to 30 minutes into the flight when disaster, in the form of a large bird, struck. I never saw what hit me. The collision occurred when my head was turned to the right looking at my flight lead. Bird impact occurred at the top center portion of the windscreen, where it connects to the metal windscreen bow. Examination later showed that the metal bow was rippled and absorbed the majority of the blow. If impact had occurred eight to 10 inches lower, and the bow had not absorbed it, I would probably not be writing this. Upon bird impact I jerked my head to the forward facing position. My mask immediately disconnected on the right side, breaking the metal bayonet fitting so that it would not reconnect to the helmet. Debris hit and cracked my helmet visor housing and removed the left three-fourths of the visor, rendering the remaining one-fourth ineffective. Due to the sudden impact and my visor breaking, I closed my eyes for a split second while turning my head forward. I instinctively pulled back on the stick, beginning a climb and reducing airspeed. Lead noticed my unannounced climb and began to wonder about the cause of my erratic flying. As quickly as possible I grabbed my mask and transmitted "I've been hit, I've been hit. You've got the lead." All further communication now involved a two-handed maneuver (I had to hold my mask to my face with my right hand and key the mike with my left hand). As I continued my climb to around 5,000 feet AGL, and deceleration continued to about 240 KCAS, I quickly began to inventory the damage around me. My map, knee board cards and various other pieces of loose paper were flying around the cockpit. I immediately became concerned about FOD, and grabbed my knee board (T-Clip), placed it on various loose papers under my leg to eliminate that distraction and FOD potential. My vision was immediately a problem of great concern. The bird's blood and remains were all over me, and all over the cockpit. The HUD, windscreen, canopy and visor were all broken to some extent and there was a great amount of glass flying around the cockpit. With no mask or visor to protect my eyes and face, the various abrasions on my face were contributing blood which was impairing my vision. A large cut above my left eye was causing most of the difficulty, and was the source of my impaired vision. This problem had only one solution: Land the aircraft and do it quickly.

The emergency now defined, lead began a climbing left turn towards our emergency divert airfield, NAS Cecil, only 25 miles east. Our climbing left turn was for about 150 degrees. Upon rollout, NAS Cecil runways 09 left and right were on our nose.

My helmet bag, cross-country packet and navigation bag were my next obstacle. They were all stowed in a pile on the right rear console, and were beginning to be blown outside the

The canopy of Capt. Dale s aircraft after being struck by a large bird on a low level flight.

D4

aircraft. It was taking a conscious effort with my right hand and elbow to hold them down and eliminate their FOD potential. I lowered my seat to reduce the wind blast coming through the hole in the windscreen. This also lowered my elbow and aided me in holding down my helmet bag and accessories. It doesn't sound like much now, but I was extremely worried about these articles being blown overboard and damaging the engines.

All communication between me and my flight lead was severely restricted due to the noise of the wind blast. Both radios were turned up to the maximum, and I had to shout into my mask while I held it up to my face to transmit my intentions. Due to the FOD in the cockpit being held down by my elbow, and using two hands to utilize the radio, the use of my right hand and arm was being restricted greatly. As things came under control one item at a time, I began to survey the aircraft damage around me. The HUD had been cracked and the windscreen had a hole in it that was 6 inches long and 2 to 3 inches wide. The entire canopy had fractured, and only the rear portion (about 18 inches long) remained.

Lead now relayed the Cecil tower frequency and TACAN channel to me and they were immediately utilized. I entered the 7700 squawk and continued straight toward the field. At 12 to 15 miles out I was given clearance for an arrested landing on runway 09 left. At 10 miles, vision in my left eye becoming noticeably more impaired, I asked the flight lead to pull up further acute on my right side so I could look out to the right and he could lead me toward the runway if my vision got worse.

As I was continuing toward the runway, I was constantly asking myself, "What am I forgetting? What have I left out? What else can I be doing?" Approaching the field, I called up the engine monitor display and compared the performance of both engines. To my relief, all indications were normal and the engines were still working flawlessly.

There were a lot of distracting transmissions on tower frequency so I asked lead to relay to the tower to have everyone maintain radio silence until I was on the deck. At six to eight miles my apprehension was at its greatest as it was time to transition to the landing configuration. At 240 KCAS and 3,000 feet AGL, I lowered the landing gear, flaps to half, and the tailhook. I was pleasantly surprised that the landing configuration felt fairly comfortable and that there were no adverse flying characteristics. At five miles I transitioned to full flaps and asked my flight lead to join up closer and look me over one last time. As he was coming over, I read my landing checklist on radio to him. It all sounded good and made sense to me, but I wanted him to hear it also and remind me of anything that I was omitting. He confirmed "three down and locked, hook down," and said that everything else looked good to him. It wasn't much, but the good news sounded reassuring over the radio and eliminated some apprehension.

Since the majority of my flight time is in the A-4 Skyhawk (1,000 hours), I found myself flying a straight-in precautionary approach profile (3,000 feet at three miles, 2,000 feet at two miles, 1,000 feet at one mile), keeping my aircraft high and fast throughout the approach. The excess altitude and airspeed made me feel comfortable in case something adverse occurred in close to touchdown. I touched down at about 165 KCAS with the meatball two cells high (the gear was 1,500 feet from the approach end), and rolled 800 to 1,000 feet into the E-28 arresting gear.

It was only then that I was able to take many deep breaths and reflect on the past 10 minutes, the 10 most anxious minutes of my life. As I surveyed the damage to the cockpit, and to my eyes and face, in the side view mirror, a sense of relief came over me as my heart began to slow again. A superb flight lead, detailed flight planning and solid aircraft performance under adverse conditions; all combined with a bit of good luck, resulted in me surviving round one of "The Turkey Buzzard vs. The Hornet." Although bird strikes are a distinct hazard in the low level environment, this Hornet and its pilot can only hope that round two never happens. I wouldn't want to press my luck a second time.

As with any mishap, I have compiled some lessons learned from my encounter with the turkey buzzard. They are: (1) Keep the vast majority of your low level scan directly in front of your aircraft. That's where *your* conflict for airspace is going to be. That's where the bird that is going to hit you is going to be flying. I was spending too much of my scan flying good formation and not enough time "between 11 and 1 o'clock." If my scan had been in *front* of my aircraft and not out the *side*, I may have been able to avoid this turkey buzzard. (2) We all know the danger of birds traveling in large groups. Ensure you are also looking for the larger type of birds, which have the capability to knock pilots and their aircraft out of the sky. These birds often travel alone and are more difficult to see than birds traveling in flocks. (3) As all bird strike victims at low level/high speed will tell you, your mask and visor are priceless in the protection they offer *your* eyes and face. Although my mask and visor were rendered useless *after* bird impact, their initial protection made all the difference; the difference between the turkey buzzard's first Hornet kill and the Hornet's first turkey buzzard kill. ◄

Capt. Dale was serving with VMFA-314 when this incident occurred. He is now attached to H & MS 11, MAG 11, 3rd MAW.

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